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# Social Science Cuts: Proxmirism Triumphant

The Reagan-Stockman savaging of the social and behavioral sciences has generally been overlooked in Washington's hullabaloo over the brazen inhumanity of the new Administration's spending priorities. And reasonably so, since denial of food and health care for the poor rates outrage ahead of grant denials for academe.

But with that scale of values understood, it would be in order for the scientific community—the clobbered "soft" disciplines as well as the relatively privileged "hard" ones—to recognize that what's going on is no mere political quirk. Rather, in regard to the social sciences, the new budget is plain and simple Proxmirism come home to roost, even though the Wisconsin Senator of Golden Fleece notoriety had nothing to do with it directly. After years of Congressional ridicule of social and behavioral research—by Proxmire and various legislative clones, all cheered on by mindless press

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reports—the political atmosphere has been rendered congenial for yahoo sentiments. And that's what we get in the Reaganites' fierce assault on the so-called soft sciences, which were none too well supported to begin with (see box Page 2). Thus, NSF, which is the mainstay of basic research in the social and behavioral sciences, has been directed to slash its social and economic sciences support by over 50 per cent; behavioral science funds are down by one-third, and other areas are chopped hard, too. The three institutes that make up the Alcohol, Drug Abuse and Mental Health Administration have been slashed in the new Reagan budget from $998 million in the current fiscal year to a proposed $443 million for FY '82, which begins next October 1.

It's not yet clear how these massive cuts will affect ADAMHA's social and behavioral sciences support, but according to an analysis that SGR has obtained concerning the National Institute of Mental Health, the agency has been directed to make no new awards for social science research.

As for NSF, the effects are quite clear. Under the Reagan budget, total funds for the Division of Social and Economic Science would be reduced from the current fiscal year figure of $33.6 million to $10 million next year. The Division's funds for political and policy studies would drop from the current $8.6 million to zero. Spending on social measurement and analysis would be halved. The Division now makes 540 research awards; under the new spending plan, it expects the figure to drop to 180.

The proposed cuts, which have drawn scarcely any significant opposition or even interest in Congress, have aroused the affected professions (SGR Vol. XI, No. 5) and have brought a barrage of protesting professors to Congressional witness chairs. On March 12, for example, Zvi Griliches, head of the Harvard Economics Department, pointed out to the House Subcommittee on Science, Research, and Technology that, because of previous commitments, NSF is effectively blocked from taking on any new research projects in economics.

Griliches, arguing that if cuts are required, they should be across-the-board or selectively made by the National Science Board, pleaded against the heavy toll on the social and behavioral sciences research budget.

"No evidence has been presented," he said, "that the best economic research projects are significantly less valuable scientifically and socially than the marginal

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## In Brief

**It's slim pickings these days for government programs aimed directly at industrial innovation—a subject that stirred a lot of interest, though not much money, in the Carter Administration. But there's even less under Reagan, who's proposed wiping out NASA's $10-million Technology Transfer Program, generally regarded as a rare example of an effective effort in that field.**

*Meanwhile, at the Commerce Department, which was headquarters for Carter's industrial-innovation planning, the fledgling Office of Productivity, Technology, and Innovation has reverted to its pre-Reagan title of just plain Science and Technology. It's headed on an acting basis by a lawyer from the Commerce General Counsel's office, Robert B. Ellert, pending a widely expected decision to dump the whole operation.*

**There's a lot of prime office space suddenly vacant at the Department of Education, which Reagan still insists he plans to demolish. On the way to that goal, Education Secretary Terrel Bell has wiped out four of 13 assistant secretary jobs and at least 30 of 47 deputy assistant secretary posts.**

# Social and Behavioral Sciences: A Tiny Slice of R&D

*From Congressional testimony in February 1980 by Eloise E. Clark, the National Science Foundation's Assistant Director for Biological, Behavioral, and Social Sciences:*

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As a fraction of total Federal funding for basic research, support of the social sciences is relatively low: $132.6 million out of an estimated total of over $4.5 billion in FY 1980, (and) the pattern of support by discipline has tended toward the erratic. In terms of buying power, the overall level of effort is well below that of the early 1970's.

Although data show that basic research support for the social sciences grew recently, increasing by 31.4 per cent (in current dollars) between FY 1977 and FY 1978, closer scrutiny is warranted. Of the $29.7 million increase for FY 1978, economics grew by 14.8 per cent ($4.4M), anthropology by 13.5 per cent ($4M), and sociology by 9 per cent ($2.7M). The greatest share of the increase, 60.6 per cent (18M) went to that category of social science "not elsewhere classified," which includes linguistics, geography, history, law and research in education. This large fraction can be accounted for primarily by a $9.5M increase at Health, Education and Welfare (the National Institute of Education received a $6.4M increase in basic research for FY 1978), a $7.4M increase at the Law Enforcement Assistance Administration and an additional $2.7M at the Department of Labor. (NSF dropped by $2.4M in this category between FY 1977 and FY 1978.) In subsequent years, the increase for basic research in these areas diminished: the increase overall for FY 1979 was 4.9 per cent; it is estimated as 1.5 per cent for FY 1980, and is likely to be essentially level in the FY 1981 budget....

Although basic research at universities retained a share of the growth during the 1977-1980 period, the average annual rate of increase was well under the cost-of-living. The increases were not distributed uniformly across fields. Three fields made stable gains: anthropology ($3.5M to $6.7M), sociology ($7.8M to $10.3M), and political science ($2M to $3.2M). Economics research averaged a 4.2 per cent annual increase and the "not elsewhere classified" category averaged 4.9 per cent. It should be noted that in each of these major fields (except sociology) the Foundation is unique in being the only agency that funds investigator-initiated research. Major funding in economics is contributed by the Department of Agriculture but this is strongly mission-oriented, non-competitive, and limited to intramural researchers and those at land grant institutions. The Smithsonian Institution provides support for anthropology, but this is exclusively intramural. For political science, NSF provides essentially 100 per cent of the available research funds.

In summary, NSF funding is vital if we are to maintain a strong scientific effort in the social and economic fields of research.

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projects in biology, mathematics, or physics.

"If there is any evidence on this topic," he continued, "it goes the other way"—thus getting into a minefield that NSF's politically sensitive bureaucrats would rather avoid. Recalling that a committee of the National Academy of Sciences looked at NSF's granting patterns five years ago, he said that "we found that it was funding approximately 60 per cent of all submitted projects in the physical sciences but only 30 per cent in the social sciences. The social sciences budgets," he advised the House Subcommittee, "were always smaller and the selection on project quality more rigorous."

In NSF's long and nervous relationship with the social sciences, there's always been that extra burden imposed on the "soft" disciplines, for the simple reason that NSF, lacking political backbone, has sought to appease the Congressional cavemen. The rationales for this around NSF headquarters have been quite wondrous, as the Foundation has bobbed and weaved around fundamentalist lunacies and Proxmirian publicity-seeking

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# Budget: "Vindictiveness, Ignorance, Arrogance"

*From testimony March 12 by Zvi Griliches, Chairman of the Harvard Economics Department, before the Science, Research, and Technology Subcommittee of the House Science and Technology Committee:*

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...no reasoned case has been made that social-science research is either valueless or of lower scientific quality than other NSF-supported research. I can, therefore, attribute the motivation for such selective cuts only to vindictiveness, ignorance and arrogance: Vindictiveness, because many of the more extreme new economic proposals have found little support among established scientists. Because they have not flocked to support them, they are perceived as being captives of liberal left-wing ideologues. Ignorance, because this is just not so. It is ironic and sad that whoever came up with these cuts does not even recognize that most of the recent "conservative" ideas in economics—the importance of "rational expectations" and the impotency of conventional macro-economic policy, the disincentive effects of various income-support programs, the magnitude of the regulatory burden, and the arguments for deregulation—all originated in, or were provided with quantitative backing by NSF supported studies. And arrogance, in the sense that those suggesting these cuts do not seem to want to know what good economic policy can or should be. They do not need more research, they know the answers. The country is embarking on one of the largest macro-economic policy experiments in our history, with very little research support for it, and they do not even want to know how to measure its effect, how it is doing, and what its consequences might be!

I am not pleading for myself. I am senior enough and working on a "hot" enough topic (R&D and productivity) to survive such cuts relatively unscathed. Nor am I pleading on behalf of the Harvard Economics Department (we will manage). What I am afraid of, and what I would like you to stop, is the dismantling of the whole economic research enterprise. What will be hurt is not only the current research endeavor but also our future ability to understand and analyze the economy and its problems quantitatively. Moreover, we may lose a whole generation of economic analysts. Where will the expertise come from when you will need it in the future?

**SOCIAL SCIENCES** *(Continued from Page 2)*

concerning social-science curriculum studies, research on romantic relationships and their link to divorce, and other easy targets for ridicule.

NSF officials often seemed to find solace in the dim-witted conclusion that the social sciences are politically vulnerable because these disciplines deal with subjects that touch on ordinary folks, such as marital and race relations, childraising, and education. So, their response would be either to cave in to critics or to try to avoid hostile notice by carefully wording research titles to render them inoffensive. As for the relative proportions of nonsense in the hard and soft sciences, some of these same NSF managers would privately concede that there's probably not much difference—it's just that you can be monumentally foolish in materials science or physics without stirring up the scientific illiterates of Capitol Hill, but it's difficult to get away with it in research on, let's say, drinking patterns of young male drivers.

The habit of acting frightened and compliant in response to the social-science assaults became well-established at the Foundation. No attempt was made to counterattack or to round up the latent support that exists on Capitol Hill and in the nation at large for serious, well-performed basic research on social subjects of importance to national well-being.

The net outcome is a triumph for the intellectual pygmies. They've got what they wanted—and the fact is they got it without much of a fight.—DSG

## *Reagan to Keep Science Office*

The Reagan Administration plans to retain the White House Office of Science and Technology Policy, but with a reduced staff and greater reliance on outside consultants and assistance from government agencies. That's the official word—first to come so far—delivered March 25 to a House Appropriations Subcommittee by Benjamin Huberman, Acting Director of OSTP.

Huberman said he expects a Director to be nominated shortly, but offered no clues as to identity. As for the function of the Office, he said that it will be "emphasizing those Presidential policy issues that it can most effectively address"—which suggests that it will not be allowed to roam about, as in the past, getting involved with highly sensitive political issues.

The professional staff will be reduced from the current 24 positions to 12, and supporting staff cut from 30 to 10. Huberman said that the proposed budget for FY 1982 is $1.7 million, which is $865,000 below the amount recommended by Jimmy Carter, and $270,000 under the present budget.

# "Modest Growth" Keeps Howls Down at NIH

The traditional script for the politics of the National Institutes of Health directs the faithful to perform a choral dirge whenever the budget fails to provide "real" growth. But in the reign of Reagan, with its delicate demarcation of the needy and the "truly" needy, some growth, even if not real growth, looks like a bit of good fortune. And so it is that NIH, though sliding down the inflationary slope, is generally regarded as having fared relatively well under the Stockman shears.

Just how well is not altogether clear, given that the fiscal affairs of NIH have been rendered obscure by Congressional failure to complete action on its two past annual budgets, plus the fact that in the past 14 months, we've had two presidential budgets and three presidential revisions of those budgets.

The table on this page, containing NIH's own expression of where it stands financially, would normally signal the opening chords for that aforementioned dirge, since the net financial outcome is basically more, but not enough to overcome inflation. "Modest growth," the Reagan Administration calls it, but it fails, in fact, to abide by what was supposed to be an immutable policy of annually funding 5000 new and continuing grants; it now appears that the mark will be missed by about 100.

There's been little outcry, however, since, in the context of the Reagan-Stockman government-wide (Defense excepted) budgetary onslaught, it might seem distasteful to whine about "modest growth."

Thus, the chief watchdog over NIH's funds, the Association of American Medical Colleges, composed a disapproving commentary on the budget for hearings March 17 by the Health Subcommittee of the Senate Appropriations Committee—but there was little zest to the AAMC response, as compared, let's say, with the all-out assault that the Association launched last year against Rep. Henry Waxman's attempt to require all of NIH to undergo periodic Congressional reauthorization of its basic legislation.

Thus, in addressing the Reagan Administration's budget plans for NIH, the Association gently pointed out that the budget has been through so many convolutions in recent months that the "modest growth" is even more modest than the White House claims, and adds up to, in the AAMC's words, "retrenchment that will have an adverse impact upon the biomedical research being conducted at academic institutions throughout our nation."

*(Continued on Page 5)*

## *Carter-Reagan Comparisons for NIH Budget*

(Budget Authority in thousands)

| | 1980 | 1981[1] | 1982 | Change |
|---|---|---|---|---|
| **Cancer** | $999,191 | $982,969 | $1,025,946 | $42,977 |
| **Heart** | 527,663 | 539,183 | 579,602 | 40,419 |
| **Dental** | 68,428 | 70,135 | 74,627 | 4,492 |
| **Arthritis** | 341,415 | 363,150 | 380,594 | 17,444 |
| **Neurology** | 242,175 | 249,056 | 276,156 | 27,100 |
| **Allergy** | 215,573 | 230,499 | 243,755 | 13,256 |
| **General Medical Sciences** | 312,479 | 314,936 | 341,201 | 26,265 |
| **Child Health** | 209,059 | 217,201 | 231,093 | 13,892 |
| **Eye** | 113,031 | 116,054 | 132,324 | 16,270 |
| **Environmental Health** | 83,896 | 92,069 | 110,058 | 17,989 |
| **Aging** | 70,063 | 74,516 | 84,186 | 9.670 |
| **Research Resources** | 169,228 | 173,813 | 191,863 | 18,050 |
| **Fogarty Center** | 8,987 | 9,254 | 9,589 | 335 |
| **Subtotal** | 3,361,188 | 3,432,835 | 3,680,994 | 248,159 |
| **Library of Medicine** | 43,979 | 45,188 | 47,677 | 2,489 |
| **Office of the Director** | 20,248 | 22,374 | 23,502 | 1.128 |
| **Buildings and Facilities** | 3,250 | 11,750 | 10,310 | -1,440 |
| **TOTAL, NIH** | 3,428,665 | 3,512,147 | 3,762,483 | 250,336 |

[1] Includes proposed supplemental for pay costs ($21,868,000) and proposed recission (-$125,995,000).

# ...MDs Still Fleeing from Clinical Research

*(Continued from Page 4)*

"In addition," the Association pointed out, "describing the FY 1981 proposal as modest growth belies the fact that it embodies a mere 2.6 per cent increase above the FY 1980 appropriation in a year in which the Consumer Price Index is optimistically predicted to climb to 11.1 per cent. Moreover, the Administration's recommendations for FY 1982 of $3.762 billion is only a 7.1 per cent increase above the revised FY 1981 request and is again well below the estimated CPI for FY 1981 of 8.3 per cent.

"Even were there no inflation," the AAMC continued, "increased investment in the scientific enterprise is necessary just to stay even."

Among other witnesses before the subcommittee, James B. Wyngaarden, Chairman of the Department of Medicine at Duke, representing the Association of Professors of Medicine, criticized plans to cut back on the training of clinical researchers.

"Based on figures revealed to date by the Administration," he said, "it is our understanding that (1) a recission of $62 million has been requested from the FY 1981 training budget, and (2) the funding level proposed for research training in FY 1981 is $132 million—$56 million less than the training budget provided by the current continuing resolution. It is also our understanding," Wyngaarden continued, "that the President proposed to reduce the total number of trainees by 7 per cent, to eliminate the institutional allowances that are paid to schools that provide training, and to suspend reimbursement of the indirect costs associated with training programs."

Wyngaarden then noted the following:

- In academic years 1966-67 through 1968-69, there were an average of 4,089 physicians in the pool of biomedical research trainees. The number of physicians in that same pool had fallen to about 2,570 by 1975 and has averaged about 1,900 since 1976.
- In 1963, 49 per cent of the students graduating from the Harvard Medical School expressed a serious interest in research; by 1976 this had fallen to 2 per cent.
- In FY 1966, 45 per cent of all new research projects awarded by NIH were submitted by principal investigators who held an M.D. degree. Since 1975, this figure has averaged about 25 per cent.

Gloomy days lie ahead for biomedical research, he—joined by other witnesses—warned the Senators, unless the Reagan budget is overruled by Congress.

The evidence so far is that Reagan yields only when the political opposition looks tough. That's happened with foreign aid and Social Security. Sweet reason, alone, however, provides no incentive for this new gang in Washington to change its mind.

## *Official Word on NIH Cuts*

—from *Fiscal Year 1982 Budget Revisions,* issued March 10 by the White House.

The Administration proposes reducing the increase in research funding proposed in the January budget to cover only partially the effects of projected inflation. These proposals reduce budget authority for research by $57 million in 1981 and $92 million in 1982 below the January budget. Outlay savings are estimated at $35 million and $21 million, respectively.

The revised budget proposes better targeting of Federal subsidies for health professions education to ensure that Federal dollars subsidize the education of health professionals only in medical specialties where they are most needed. General institutional subsidies for training health professionals would be eliminated, training of mental health professionals would be phased out by the end of 1982, and there would be no new scholarships in the remainder of 1981 or in 1982 for the NHSC. The Administration also proposes to end the current practice of paying more to educational institutions for a Federally supported research trainee under the national research service awards program than is charged in tuition and fees to non-Federally supported students at the same institutions. These reforms would reduce 1982 budget authority by $140 million and outlays by $133 million below the January request.

## In Print

*Research and Innovation: Developing a Dynamic Nation,* 521 pages, a collection of papers constituting the third in a series of reports on economic change prepared for the Congressional Joint Economic Committee. Assembled under the direction of Walter A. Hahn, of the Congressional Research Service, the publication constitutes the most up-to-date review of research and analysis in the innovation field. Available without charge from: Joint Economic Committee, Room G-133, Dirksen Senate Office Building, Washington, DC 20510; tel. (202) 224-5321.

## Tax Aid Plan for Academic R&D

Legislation designed to encourage industry to contribute research funds to universities was introduced March 12 by Senator Bill Bradley (D-NJ). Titled the Research Revitalization Act (S 692), Bradley's bill includes a provision for a 25-per-cent tax credit for company funds contributed for research at institutions of higher education.

# NIH Invites Closer Links to Industry

Catching up with the spirit of the times, the National Institutes of Health is looking closely at ways to forge closer links between the biomedical research community and private industry. Such links have been challenged in the past for allowing profit—rather than scientific interest or social need—to guide the selection of research priorities, but have recently returned to fashion.

One of the most obvious manifestations of this change in direction is the decision, said to have been agreed to in principle by top NIH officials and now awaiting the signature of Health Secretary Richard Schweiker, to reverse a 20-year-old policy preventing scientists who work for profit-making companies from applying for competitive research grants. Behind this, however, are the implications of a set of initiatives passed into law by the last Congress to stimulate innovation in all technological fields; in addition, there's the obvious interest of the new Administration in harnessing research to market opportunities, and of universities and research institutions in opening up the private sector as a source of support for basic research.

Describing the implications of these developments to a meeting of the NIH Director's Advisory Committee (DAC), last week Charles Lowe, Acting Associate Director for Medical Applications of Research, suggested that biomedical research was at a "watershed" that could have profound implications across a wide range of issues, from strains between scientists caused by the potential patenting of research results, to a host of new administrative burdens and responsibilities. Others at the meeting were less dramatic in their characterization. But almost all who spoke agreed that, whether laboratory scientists were happy with the idea or not, closer ties between universities and medical schools on the one hand, and chemical and pharmaceutical companies on the other—ties which had been recently reinforced by, for example, the heavy commercial interest in recombinant DNA research—were likely to be one of the dominant themes of research in the 1980s.

Two major legislative changes were identified by Lowe as having significant implications for NIH. The first was the Patent and Trademark Law Amendments, passed by the 96th Congress as one of its final acts last December, which gives universities and small businesses automatic rights to patents resulting from federally sponsored research. Such arrangements previously applied to universities prepared to enter into "Institutional Patent Agreements" (IPAs) with NIH, a scheme which has been in effect since the early 1970s. The new act broadens the scope of this arrangement, and gives NIH additional responsibilities for monitoring the efforts which universities put into exploiting the patents they are awarded. According to Dr. Lowe, about 64 per cent of the government patents currently active have been the result of NIH-sponsored research.

Related to the patent legislation is the Technology Innovation Act of 1980, often identified with former Senator Adlai Stevenson (D-Ill.). Among the provisions of this act—several of which, such as the setting up of cooperative generic technology centers, have since been washed away in the Reagan Administration's flood of budget cuts—was that every federal laboratory should set aside 0.5 per cent of its research and development funds for "technology evaluation and transfer." If interpreted literally, this could require NIH to spend up to $15 million on efforts aimed at transferring research results to the market-place.

In addition to the legislative changes, both of which were partly the result of initiatives that accompanied President Carter's Domestic Policy Review of Industrial Innovation, NIH also seems to be taking a cue from the economic philosophy of the new Administration. "Technology *per se* has become an important chip in the poker game between the nations of the world," Lowe told the DAC. "NIH is the greatest source of medical technology in the world, and technologies developed primarily for health have big implications for many other industries as well."

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## *NSF May Get Equipment Funds*

The Office of Management and Budget has advised the National Science Foundation that next year may bring restoration of at least part of the $75 million that Carter earmarked—and Reagan eliminated—for research equipment in universities.

"We also hope that NSF—and maybe some other agencies—will be able to begin quietly, in the name of supporting research, to support research equipment," an OMB science official told a briefing of members of the Institute of Electrical and Electronic Engineers last week. He added that "we are seriously considering this matter in OMB and are not saying that it is a non-problem."

On the science and engineering education cuts, he said that eliminating virtually the entire budget in the next fiscal year "is an obvious opportunity to consider whether some restart should be made in some of the NSF's education responsibilities." He said that recent NSF education activities had been "somewhat adrift," resulting in a "hodge-podge" of separate programs, and that with the elimination of virtually all of these, "we hope there will be a new slate to work on."

# ...Would Lessen Reliance on Washington

*(Continued from Page 6)*

Backing up this claim that biomedical research can be considered a general source of industrial innovation, NIH's Office for Medical Applications of Research has produced a draft of a report entitled "Biomedical Discoveries Adopted by Industry for Purposes other than Health Services." The report lists ten biomedical discoveries with industrial applications, from chlorotetracycline and its subsequent use in animal feed, to freeze drying and its subsequent application to food preservation, which together have produced an estimated annual value of $37 billion (a large proportion of this coming from the use of enzyme biochemistry in techniques such as processing leather or production of enzyme detergents).

Introducing the report, Lowe writes: "If viewed in the light of the data obtained in this pilot study, Federal investment in biomedical research has not only yielded major contributions to the health of the nation, but has concomitantly proven to be a remarkably profitable investment. In addition, the explosion in biomedical invention characteristic of this past decade would make credible the speculation that the return on this investment will increase strikingly in the immediate future."

Lowe said that, in general, NIH supported the closer links between universities and industry which had been espoused by the National Commission on Research (NCR) in its recent report on this topic, subtitled "Developing Cooperative Research Relationships in the National Interest." The director of the NCR study, Cornelius Pings of the California Institute of Technology, told the DAC meeting, that there were several advantages in closer identification. "Firstly, it helps to transfer technology faster into the public domain," he said. "Secondly, it would dilute the federal influence on university campuses, which many of us feel would probably be healthy; a bit of competition and choice would be a good thing."

"The real opportunity is the enrichment of the research process," said David Wilson, assistant to the President of the University of California, supporting the comments of others that, although increasing corporate support for basic science might be welcomed by universities, there was no way in which it could become a substitute for the federal dollar.

There were also several words of caution. Recent experience with recombinant DNA research, where many molecular biologists have become reluctant even to discuss their research at scientific conferences for fear that they may be prejudicing future patent rights, has acted as a warning light of the way that things could go.

"Free exchange," said Lowe, is "inconsistent with industrial practices that require the confidentiality of proprietary information." Other warnings came from Philip Siekevitz, Professor of Cell Biology at Rockefeller University. "Universities constitute a substantial social investment, access to whose resources should be open to all," he said. NIH seemed to be entering an "ethically murky world" where an alliance between science and profit "could lead to a further concentration of large corporate power to the detriment of smaller companies," he warned.

Such criticism, however, seems unlikely to have a significent effect on future policy directions at NIH. These are more accurately foreshadowed by the decision to remove existing restrictions which prevent scientists who work for industry from applying for research grants. The restriction was introduced in the early 1960s, under NIH Director James Shannon, partly to help guarantee that federal research funds would go towards building up research facilities at universities and medical schools rather than private companies.

Removal of this restriction—and hence a return to the pre-1962 situation—has been debated for several years. Last year draft changes in the administrative procedures of the Public Health Service were published in the *Federal Register* (February 18, 1980), and according to NIH officials the comments received have been "mainly favorable." The final version of the announcement was drawn up in the last days of the Carter administration. Its publication has been held up by Mr. Reagan's moratorium on new regulations, although few expect that this particular one will lie on Schweiker's desk for long.

"Some changes will come," NIH Director Donald Fredrickson said at the end of the DAC meeting, adding that they would be "in the direction of some of the things" which Lowe had mentioned.

Related themes are likely to be brought up at future meetings of the committee, while NIH itself is busy working out how it can conform with both the new laws from Congress and ideological signals from the White House. Some cues are likely to be taken from the National Science Foundation, which has generated considerable experience in recent years as a "marriage broker" between industrial companies and university research departments.—David Dickson

(The author is Washington news editor of the British journal *Nature*.)

## Townes to Chair New MX Missile Study

Defense Secretary Weinberger has appointed Charles Townes, Nobel-laureate professor of physics at UC Berkeley, to chair a 15-member committee that's to examine the MX missile program.

# For First Time: Big R&D Budget Picture

(Budget Authority in Millions)

| | FY '81 | | FY '82 | |
|---|---|---|---|---|
| | Carter | Reagan | Carter | Reagan |
| DOD | 16,725 | 17,313 | 20,581 | 22,014 |
| DOE | 6,294 | 5,454 | 7,390 | 5,579 |
| NASA | 5,537 | 5,523 | 6,726 | 6,122 |
| HHS | 3,994 | 3,894 | 4,273 | 4,153 |
| NSF | 1,008 | 935 | 1,252 | 1,018 |
| USDA | 816 | 816 | 902 | 919 |
| Interior | 467 | 439 | 504 | 441 |
| DOT | 411 | 399 | 497 | 480 |
| Commerce | 387 | 373 | 421 | 307 |
| EPA | 362 | 362 | 345 | 345 |
| Labor | 154 | 91 | 327 | 91 |
| NRC | 216 | 216 | 232 | 232 |
| AID | 123 | 123 | 233 | 233 |
| VA | 157 | 157 | 159 | 159 |
| Ed | 141 | 136 | 154 | 112 |
| Other | 240 | 240 | 284 | 269 |
| Total Non-Mil. | 20,307 | 19,158 | 23,699 | 20,460 |
| Grand Total | 37,032 | 36,471 | 44,280 | 42,474 |

Source AAAS

The figures are still a bit rough, but herewith, courtesy of the Office of Public Sector Programs, of the American Association for the Advancement of Science, is the first overall view of the Reagan Administration's spending plans for research and development.

The numbers were pieced together from announcements by government agencies, White House statements, and other sources. In the recent past, the task would have been performed by the White House science office, but since that sits idle at present, no compilation of this kind was publicly available until the AAAS put it all together.

The numbers have to be regarded with some caution, since major changes are known to be in the works in some cases, but the Administration hasn't yet settled on what they'll be.

Nonetheless, the overall patterns are pretty clear. R&D for Defense goes up by a big margin, even beyond the already large increase that Carter had proposed for the military. But otherwise, with odd exceptions, Reagan has trimmed Carter's spending plans. Spending for non-military R&D in FY '82 is held essentially even with this year's figure—which means, of course, that it's down in terms of purchasing power. For defense-related R&D, however, the increase is astonishing—from $16.7 billion budgeted for this year by Carter, to slightly over $22 billion sought by Reagan for next year.

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